

REMARKS

Claims 2 and 4-9 are amended. No new subject matter is added. Claims 1-20 remain pending in the application. Reconsideration and allowance of the pending claims is requested in light of the following remarks.

In the Claims

The amendment of claim 2 is fully supported by the original application at, e.g., claim 2, FIG. 12; page 5, lines 10-11; and page 6, lines 5-6.

The amendment of claim 4 is fully supported by the original application at, e.g., page 6, lines 5-6.

The amendment of claim 5 is fully supported by the original application at, e.g., FIG. 12; claim 2; and page 5, lines 10-11.

The amendment of claim 6 is fully supported by the original application at, e.g., page 6, lines 5-6.

Claims 7, 8, and 9 are amended for consistency with claim 6.

Double Patenting

Claims 1-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,607,955 to Lee ("Lee"). The applicant disagrees.

As indicated by the Examiner, a non-statutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is either anticipated by, or would have been obvious over, *the reference claim(s)* (emphasis added).

According to MPEP 804(B)(1), any obviousness-type double patenting rejection should make clear the differences between the inventions defined by the conflicting claims – a claim in the patent compared to a claim in the application, as well as the reasons why a person of ordinary skill in the art would conclude that the invention defined in the claim in issue is an obvious variation of the invention defined in the claim in the patent.

The merely conclusory statement presented in the most recent office action ("the conflicting claims ... are not patentably distinct from each other because the claims of the patent are commensurate in scope with those of the instant invention") fails to meet any one of the standards outlined above for a proper obviousness-type double patenting rejection.

The analysis employed in an obviousness-type double patenting rejection parallels the guidelines for a 35 USC 103(a) rejection, with the notable difference that, with certain exceptions, the disclosure of the patent may not be used as prior art. MPEP 804(B)(1).

One difference between claim 1 of Lee and claim 1 of the present application is that, as an initial matter, a wire line layer is deposited before performing subsequent steps (depositing hard mask layers, etching the hard mask layers, etc) that ultimately result in the patterning of the wire line layer to form bit lines. Lee, on the other hand, appears to "[fill] the exposed semiconductor substrate with a conductive material" only after the interlayer insulating layer has been etched with a self-aligned contact mask (claim 1). Thus, claim 1 of Lee and claim 1 of the instant invention are directed at substantially different methods of forming contacts, and for at least this reason claim 1 of the instant invention is not merely an obvious variant of Lee's claim 1.

Thus, not only does Lee's claim 1 fail to teach all the features recited in applicant's claim 1, there also appears to be no suggestion or motivation to modify Lee's claim 1 to arrive at the method claimed by the applicant. In a 35 U.S.C. 103(a) analysis, the failure to achieve any one of these requirements indicates that a *prima facie* case of obviousness does not exist. MPEP 2143.

For the above reasons, the applicant traverses the non-obvious type double patenting rejection.

Furthermore, if this rejection is maintained in the next office action, the applicant requests that the differences between the conflicting claims be clearly identified, as well as the reasons why a person of ordinary skill in the art would conclude that the invention defined in the claim in issue is an obvious variation of the invention defined in the claim in the patent, in accordance with MPEP 804(B)(1).

Claim Rejections – U.S.C. § 102

Claims 1 and 3-5 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,534,389 to Ference et al. ("Ference"). The applicant disagrees.

It is alleged that Ference discloses a first hard mask layer (first TEOS layer 16; FIG. 1; column 4, lines 35-36) a second hard mask layer (silicon nitride layer 18; FIG. 1; column 4, line 36), and a third hard mask layer (second TEOS layer 20; FIG. 1; column 4, line 37), as recited in claim 1. It was recognized at page 3, section 4 of the final office action that the first hard mask layer 16 and the third hard mask 20 are both formed of TEOS material.

However, claim 1 requires that each of the first, second, and third hard mask layers are formed of a different insulating material. For this reason, Ference fails to anticipate claim 1 because it does not show the identical invention in as complete detail as contained in the claim. MPEP 2131.

Claim 3 depends from claim 1. Consequently, Ference fails to anticipate claim 3 for at least the same reasons it fails to anticipate claim 1. MPEP 2131.

Claim 4 recites forming a metal layer, where the metal layer consists of a metal. Contrary to this feature, Ference's alleged metal layer 14 is in actuality a polysilicon layer 14 (FIG. 1; column 4, line 35). Polysilicon is not metal.

Claim 4 also requires that each of the first, second, and third hard mask layers are formed of a different insulating material. To the contrary, Ference's alleged first hard mask (first TEOS layer 16) and the alleged third hard mask (second TEOS layer 20) are formed of the same (TEOS) material, as was indicated above.

For any one of the above reasons, Ference fails to anticipate claim 14 because it does not show the identical invention in as complete detail as contained in the claim. MPEP 2131.

Claim 5 depends from claim 4. Consequently, Ference fails to anticipate claim 5 for at least the same reasons it fails to anticipate claim 4. MPEP 2131.

Furthermore, contrary to claim 5, Ference does not teach that the polysilicon layer 14 is formed over a plurality of buried contact pads. For this additional reason, Ference fails to anticipate claim 5. MPEP 2131.

Also contrary to claim 5, as was explained above for claim 1, Ference does not teach the polysilicon layer 14 is patterned to form bit lines. For this additional reason, Ference fails to anticipate claim 5. MPEP 2131.

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee. The applicant disagrees.

Claim 1 recites, *inter alia*, patterning the wire line layer to form bit lines. Contrary to this feature, Lee states that the alleged wire line layer 102 shown in FIG. 3A is in actuality a gate electrode layer 102 (column 6, lines 15-17). A gate electrode is not identically the same

thing as a bit line. For at least this reason, Lee fails to anticipate claim 1 because it does not show the identical invention in as complete detail as contained in the claim. MPEP 2131.

Claims 2-3 depend from claim 1. Consequently, Lee fails to anticipate claims 2-3 for at least the same reasons it fails to anticipate claim 1. MPEP 2131.

Furthermore, claim 2 recites that depositing the wire line layer comprises depositing a metal layer consisting of a metal over a plurality of buried contact pads.

Contrary to claim 2, Lee states that the alleged metal layer 102 shown in FIG. 3A is in actuality a gate electrode layer 102 that is made of a polysilicon layer 102 (column 6, lines 15-17). Polysilicon is not metal.

Also contrary to claim 2, Lee does not teach that the alleged metal layer 102 is deposited over a plurality of buried contact pads.

For these additional reasons, Lee fails to anticipate claim 2 because it does not show the identical invention in as complete detail as contained in the claim. MPEP 2131.

Claim 4 recites, *inter alia*, forming a metal layer, where the metal layer consists of a metal. Contrary to claim 4, Lee states that the alleged metal layer 102 shown in FIG. 3A is in actuality a gate electrode layer 102 that is made of polysilicon (column 6, lines 15-17). Polysilicon is not metal.

For at least this reason, Lee fails to anticipate claim 4 because it does not show the identical invention in as complete detail as contained in the claim. MPEP 2131.

Claim 5 depends from claim 4. Consequently, Lee fails to anticipate claim 5 for at least the same reasons it fails to anticipate claim 4. MPEP 2131.

Furthermore, contrary to claim 5 and as explained above with regard to claim 2, Lee does not teach that the alleged metal layer 102 is deposited over a plurality of buried contact pads. For this additional reason, Lee fails to anticipate claim 5. MPEP 2131.

Claim 5 also recites that forming the wire lines comprises forming bit lines. Contrary to this feature, Lee states that the alleged wire line layer 102 shown in FIG. 3A is in actuality a gate electrode layer 102 (column 6, lines 15-17). A gate electrode is not identically the same thing as a bit line. For this additional reason, Lee fails to anticipate claim 5 because it does not show the identical invention in as complete detail as contained in the claim. MPEP 2131.

Claim 6 recites, *inter alia*, forming a metal layer on a first insulating layer that covers a plurality of buried contact pads, and patterning the metal layer to form bit lines.

Lee states that the alleged metal layer 102 shown in FIG. 3A is in actuality a gate electrode layer 102 that is made of a polysilicon layer 102 (column 6, lines 15-17).

Contrary to claim 6, forming a polysilicon layer 102 as taught by Lee is not identically the same as forming a metal layer.

Contrary to claim 6, forming a polysilicon layer 102 on a device isolation layer 100 as taught by Lee (FIG. 3A; column 6, lines 3-4) is not identically the same as forming a metal layer on a first insulating layer that covers a plurality of buried contact pads.

Contrary to claim 6, patterning the gate electrode layer 102 to form polysilicon gate electrodes as taught by Lee is not identically the same as patterning the metal layer to form bit lines.

For at least these reasons, Lee fails to anticipate claim 6 because it does not show the identical invention in as complete detail as contained in the claim. MPEP 2131.

Claims 7-20 depend from claim 6. Consequently, Lee fails to anticipate claims 7-20 for at least the same reasons it fails to anticipate claim 6. MPEP 2131.

Claim 7 further recites that forming the metal layer comprises forming a metal layer consisting of tungsten. Contrary to this feature, Lee's polysilicon layer 102 does not consist of tungsten. For this additional reason, Lee fails to anticipate claim 7 because it does not show the identical invention in as complete detail as contained in the claim. MPEP 2131.

Claim Rejections – U.S.C. § 103

The present application does not currently name joint inventors, thus it appears that the comments made at page 4, section 8 of the most recent office action are inapplicable to the present application.

As a pre-emptive matter, the Lee reference constitutes prior art under 35 U.S.C. 102(e) as of its U.S. filing date, or 4 April 2001. MPEP 2136. The filing dates of foreign applications may not be used as 35 U.S.C. 102(e) dates for prior art purposes. MPEP 2136.03, emphasis in original.

The Lee reference does not constitute prior art under any one of 35 U.S.C. 102(a), (b), (c), or (d). MPEP 2132, 2133, 2134, and 2135. Thus, Lee qualifies as prior art only under 35 U.S.C. 102(e), (f), or (g).

According to 35 U.S.C. 103(c), subject matter developed by another which qualifies as prior art only under 35 U.S.C. 102(e), (f), or (g) may be disqualified as prior art against the claimed invention if that subject matter and the claimed invention “were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.” MPEP 706.02(l)(1), 2146.

The Lee reference and the application have the same assignee, namely, Samsung Electronics Co., Ltd. Furthermore, at the time the invention was made, it was subject to an obligation of assignment to Samsung Electronics Co., Ltd. Consequently, the Lee reference is disqualified as prior art for purposes of a 35 U.S.C. 103 rejection. 35 U.S.C. 103(c).

Claims 2 and 6-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ference. The applicant disagrees.

Claim 2 is allowable over Ference at least because it depends from a nonobvious independent claim. MPEP 2143.03.

Furthermore, contrary to claim 2, Ference fails to teach or suggest depositing a metal layer consisting of a metal over a plurality of buried contact pads. Ference states that the alleged metal layer is in actuality a polysilicon layer 14 (FIG. 1; column 4, line 35). The polysilicon layer 14 becomes part of a gate stack structure 22 and a capped gate stack structure (FIG. 3; column 4, lines 50-65). A polysilicon layer does not consist of a metal.

For this additional reason, Ference does not establish a *prima facie* case of obviousness for claim 2 because it does not teach or suggest all the features of the claim. MPEP 2143.03.

Claim 6 recites, *inter alia*, forming a metal layer on a first insulating layer that covers a plurality of buried contact pads, and patterning the metal layer to form bit lines.

Contrary to claim 6, Ference's alleged metal layer 14 is in actuality a polysilicon layer 14 (FIG. 1; column 4, line 35). Polysilicon is not metal.

Contrary to claim 6, Ference's electrically insulative dielectric layer 13 (FIG. 1; column 4, lines 29-30) does not cover a plurality of buried contact pads.

For any one of these reasons, Ference does not establish a *prima facie* case of obviousness for claim 6 because it fails to teach or suggest all the features recited in the claim. MPEP 2143.03.

Claims 7-20 depend from claim 6. Consequently, claims 7-20 are also allowable over Ference at least because they depend from a nonobvious independent claim. MPEP 2143.03.

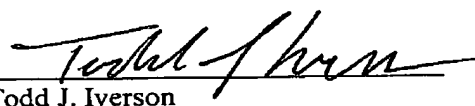
Furthermore, claim 7 further recites that forming the metal layer comprises forming a metal layer consisting of tungsten. Contrary to this feature, Ference's polysilicon layer 14 does not consist of tungsten. For this additional reason, Ference fails to establish a *prima facie* case of obviousness for claim 7 because it does not teach or suggest all the features recited in the claim. MPEP 2143.03.

Conclusion

For the above reasons, reconsideration and allowance of the pending claims is requested. Please telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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